



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/775,001	02/01/2001	Bhavan R. Gandhi	CR00218M	7492
22917	7590	04/28/2004	EXAMINER	
MOTOROLA, INC. 1303 EAST ALGONQUIN ROAD IL01/3RD SCHAUMBURG, IL 60196			REKSTAD, ERICK J	
			ART UNIT	PAPER NUMBER
			2613	8
DATE MAILED: 04/28/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/775,001	GANDHI ET AL.
	Examiner	Art Unit
	Erick Rekstad	2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 01 February 2001.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-23 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

*1-6, 9-13 and 16-18 are*  
Claims ~~1, 2, 6, 9, 10, 16, and 18~~ rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 6,130,912 to Chang et al.

[claim 1]

Chang teaches a method comprising the steps of: determining a signature metric for a portion of a first image (Col 6 Lines 12-22, Col 7 Lines 52-65, Fig. 2 and 4A-B, Note: From the applicant's specifications a signature metric is projection data for a block); searching a second image for at least one relative match of the signature metric, yielding one or more candidate regions (Col 6 Lines 63-67, Col 7 Lines 1-35, Col 9 Lines 1-8, Fig. 2 and 5); in a pixel domain, searching at least one of the one or more

candidate regions for the portion of the first image to obtain a motion vector for the portion of the first image (Col 9 Lines 8-51, Fig. 6). (Col 12 Lines 15-40).

[claim 2]

Chang teaches the portion of the first image is in signature space (Col 6 Lines 40-51, Fig. 2 and 5). Note the examiner views signature space as the region being searched, wherein the portion of the first image must be in the region being searched in the reference image as shown in the applicant's Fig. 4.

[claims 6 and 18]

Chang teaches the method of claim 1 and 16, wherein the step of searching the second image comprises searching less than all of the second image (Col 6 Lines 47-51, Fig. 2).

[claims 9 and 10]

Chang, as shown above for claim 1, teaches the method comprising the steps of: employing a portion of a signature space to identify a candidate region in an image space of a possible relative match with a current image (Col 6 Lines 63-67, Col 7 Lines 1-35, Col 9 Lines 1-8, Fig. 2 and 5); searching a part of the image space based at least in part on a portion of the candidate region to obtain a motion vector for at least a part of the current image (Col 9 Lines 8-51, Fig. 6). As required by claim 10, Chang teaches the determining a signature metric (Col 6 Lines 12-22, Col 7 Lines 52-65, Fig. 2 and 4A-B).

[claim 16]

Chang, as shown above for claim 1, teaches a method comprising the steps of: comparing a signature metric for a portion of a first image to projected data in a search window of a second image, yielding at least one coarse motion vector; on a pixel basis, searching at least one region related to the at least one coarse motion vector for image data, yielding a fine motion vector (Col 7 Lines 5-65, Col 9 Lines 5-51).

[claims 3, 4, 5, 11, 12, 13 and 17]

Chang teaches the method of determining a signature metric. Chang further teaches a vertical signature metric comprising vertically projected image data and a horizontal signature metric comprising horizontally projected image data (Col 7 Lines 55-67, Col 8 Lines 1-67, Note: Col 8 Lines 37-38).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7, 8, 14, 15, 19, 20-23 rejected under 35 U.S.C. 103(a) as being unpatentable over Chang as applied to claim 1, 9, and 16 above, and further in view of US Patent 6,567,469 to Reckitt.

[claims 7, 8, 14, 15, 19 and 20]

Chang teaches the search for a motion vector using a search area around a supermacroblock. This area contains a zeroth motion vector (Figs. 2 and 5. Chang does not specifically teach the comparing of the zeroth motion vector with the other determined motion vector. Rackett teaches the zeroth motion vector is considered the most likely vector candidate (Col 7 Lines 59-61). Rackett further teaches comparing the blocks based on SAD, which is pixel-by-pixel (Col 3 Lines 8-33). Rackett further teaches comparing the zeroth motion vector against other motion vectors (Col 7 Lines 45-56). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the search method of Chang with the search method of Rackett in order to compare the mostlikely vector candidate (zeroth motion vector) with other vector candidates.

[claims 21, 22 and 23]

Chang and Rackett teach the system comprising software to perform the methods of claims 21, 22 and 23. It is well known in the art to replace software with hardware or hardware with software (official notice). It would have been obvious to one of ordinary skill in the art at the time of the invention to produce the system of Chang and Rackett in hardware as a design choice.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent 5,699,129 to Tayama.

US Patent 5,832,101 to Hwang et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erick Rekstad whose telephone number is 703-305-5543. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Kelley can be reached on 703-305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Erick Rekstad  
Examiner  
AU 2613  
(703) 305-5543  
erick.rekstad@uspto.gov

  
CHRIS KELLEY  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600